What is claimed

1. A method of introducing in-band network management packets in a network comprising steps of:
constructing a packet including a header;
inserting a predetermined code in a field in the header; and
determining whether the packet includes an in-band network management packet or a user packet using the predetermined code.

2. The method of claim 1, wherein the field for inserting the predetermined code is an experimental field.

3. The method of claim 2, wherein the predetermined code is a three-bit code.

4. The method of claim 3, wherein the predetermined code is a one-bit code.

5. The method of claim 1, wherein the field for inserting the predetermined code indicates class of service for the packet.

6. The method of claim 2, wherein the field for inserting the predetermined code is a time-to-live field.

7. The method of claim 6, wherein the predetermined code is a one-bit code.

8. The method of claim 1, wherein the constructed packet is a multi-protocol label-switching packet.

9. The method of claim 1, wherein the header includes a shim header, and the field wherein the predetermined code is inserted is located in the shim header.

10. The method of claim 1 further including a step of:
transmitting the constructed packet on a multi-protocol label switching network.

11. A method of introducing in-band network management packets in a network, comprising a step of:

determining whether a packet is an in-band network management packet or a user packet.

12. The method of claim 11, wherein the step of determining whether a packet is an in-band network management packet or a user packet further includes:

using a predetermined code to distinguish an in-band network management packet from a user packet.

13. The method of claim 12, wherein the packet includes a shim header and the predetermined code is inserted in an experimental field located in the shim header.

14. The method of claim 12, wherein the packet includes a shim header and the predetermined code is inserted in a time-to-live field located in the shim header.

15. The method of claim 11, wherein the packet is multi-protocol label switching packet.

16. A method of introducing in-band network management packets in a network, comprising steps of:

designating a label that distinguishes an in-band network management packet from a user packet;

constructing a packet; and

determining whether the constructed packet is an in-band network management packet or a user packet using the designated label.

17. The method of claim 16, wherein the constructed packet includes a header and a payload, the header including a shim header, and further including a step of:

inserting the designated label in the shim header.

18. The method of claim 17, further including steps of:

inserting the designated label on top of a label stack in the shim header; and

determining a next hop for the packet using a label on the label stack below the designated label.

19. The method of claim 16, wherein the packet is a multi-protocol label switching packet.

20. The method of claim 17, further including steps of:

constructing an in-band network management packet having a payload; and

determining a next hop for the packet using a label in a designated field in the payload of the in-band network management packet.

21. The method of claim 16, wherein the step of determining whether the constructed packet is an in-band network management packet or a user packet is performed by a router in a multi-protocol label switching network receiving the constructed packet..

22. A network comprising:

an originating router constructing an in-band network management packet; and

a receiving router that receives a packet and determines whether the packet is an in-band network management packet or a user packet.

23. The network of claim 22, wherein the originating router inserts a predetermined code in a header in the in-band network management packet, and the predetermined code identifies an in-band network management packet.

24. The network of claim 23, wherein the header includes a shim header, and the predetermined code is inserted in an experimental field in the shim header.

25. The network of claim 24, wherein the predetermined code is any one of a three-bit code and a one-bit code.

26. The network of claim 23, wherein the header includes a shim header, and the predetermined code is inserted in a time-to-live field in the shim header.

27. The network of claim 22, wherein the constructed packet is a multi-protocol label switching packet.

28. The network of claim 22, wherein the network is a multi-protocol label switching network.

29. The network of claim 22, wherein the originating router inserts a reserved label in a header in the packet, and the receiving router uses the reserved label to determine whether the packet is an in-band network management packet or a user packet.

30. A network comprising:

an originating router constructing an in-band network management packet and inserting a reserved label in a header in the packet; and

a receiving router that receives a packet and determines whether the packet is an in-band network management packet or a user packet using the reserved label.

31. The network of claim 30, wherein the header includes a shim header, the reserved label is inserted on top of a label stack in the shim header and the receiving router determines a next hop for the packet using a label on the label stack below the reserved label.

32. The network of claim 30, wherein the originating router constructs an in-band network management packet and the receiving router determines a next hop for the packet using a label in a designated field in a payload of the constructed in-band network management packet.

33. The network of claim 30, wherein the constructed packet is a multi-protocol label switching packet.

34. The network of claim 30, wherein the network is a multi-protocol label switching network.

35. A router comprising:

reception circuitry that receives an incoming packet; and

processing circuitry that identifies a predetermined code and determines whether the incoming packet is an in-band network management packet or a user packet using the predetermined code.

36. The router of claim 35, wherein the processing circuitry identifies the predetermined code from an experimental field in a shim header of the received packet.

37. The router of claim 35, wherein the predetermined code is any one of a one-bit and three-bit code.

38. The router of claim 35, wherein the processing circuitry identifies the predetermined code from a time-to-live field in a shim header of the received packet.

39. The router of claim 35, wherein the constructed packet is a multi-protocol label switching packet.

40. The router of claim 35, wherein the network is a multi-protocol label switching network.

41. A router comprising:

reception circuitry that receives an incoming packet having a header that includes a shim header and a payload; and

processing circuitry that identifies a reserved label in the shim header in the packet and determines whether the incoming packet is an in-band network management packet or a user packet using the reserved label.

42. The router of claim 41, wherein the reserved label is on top of a label stack in the shim header and the processing circuitry determines the next hop for the incoming packet using a label below the reserved label on the label stack.

43. The router of claim 41, wherein the processing circuitry determines a next hop for the incoming packet using a label in a designated field in a payload of an in-band network management packet.

44. The router of claim 41, wherein the incoming packet is a multi-protocol label switching packet.

45. The router of claim 41, wherein the router is a multi-protocol label switching router.